2001 AMERICAN OYSTERCATCHER BREEDING ACTIVITY
CAPE HATTERAS NATIONAL SEASHORE

The breeding activities of American Oystercatchers were monitored at Cape Hatteras National Seashore (CAHA) in 2001. This was the third consecutive year of monitoring activity along the entire beach habitat within CAHA. By the first week in April, traditional nesting territories were protected with symbolic fencing. Additional sites were posted as these solitary-nesting birds established territories. If nesting occurred in very isolated areas of CAHA where potential human disturbance was minimal, symbolic fencing was not used. Such remote areas were only found in a few cases on Ocracoke Island.

Productivity

This year, thirty-nine pairs of oystercatchers produced forty-six nests (Table 1). Of these, twenty-two nests (48%) hatched. Twenty-four nests (52%) were unsuccessful. Of the forty-two chicks produced, 24 (57%) reached fledgling age. This is the highest fledgling rate since monitoring began. Overall productivity was 0.62 fledglings per breeding pair. These numbers are higher than the last two season's figures. In 2000, 35% of the nests hatched and 28% of the chicks fledged resulting in a productivity level of 0.24 fledglings per breeding pair. In 1999, 28% of the nests hatched and 22% of the chicks fledged with a final productivity rate of 0.12 fledglings per breeding pair (Table 2).

Breeding efforts varied between islands within CAHA. In 2001, two of three nesting attempts failed for two oystercatcher pairs on Bodie Island (Table 1, Chart 1). Productivity on Bodie Island was 0.50 fledglings per breeding pair. No successful nesting occurred here in 1999 and 2000 (Table 2 and 3, Chart 1). Twenty-four pair nesting on Hatteras Island produced twenty-eight nests. Thirty-six per cent hatched. Of the eighteen chicks produced, six (33%) survived to fledgling age. Oystercatcher breeding productivity on Hatteras Island was 0.25, slightly higher than the past two seasons. Breeding success was highest on Ocracoke Island. This year, thirteen pair produced fifteen nests. Sixty-seven per cent of nests were successful; chick survival rate was a high of 77%. Seventeen chicks fledged on Ocracoke Island in 2001. This equates to a productivity rate of 1.30, a significant increase over last year's figure of 0.58. In 1996, CAHA staff initially monitored breeding activity on Ocracoke Island where productivity among twelve nesting pair was 0.66. Other islands were not included in this 1996 survey.

Factors Influencing Productivity

Of the twenty-four unsuccessful oystercatcher nests, five (21%) were known to have been lost to predation. One clutch each was lost to crow and ghost crab depredation. Three clutches were lost to fox. No nests were abandoned. The largest proportions of failed nests (79%) were lost to unknown causes. In these nineteen cases, eggs disappeared without definitive evidence of causes. These include five nests that bore evidence of predation based on tracks found in close proximity to nests but not at the actual nest. Fox tracks were found near three of these five additional nests. Mink tracks were found near one nest and gull tracks near another. The loss of one clutch coincided with heavy rains associated with a tropical depression. No major storms or flooding events impacted a large number of nests, as was the case in both 1999 and 2000.

Of the forty-two chicks produced, a total of eight-teen (43%) were lost (Table 1). All chicks were lost to unknown causes. One chick and its parents were not seen after the closure area they used was flooded. Two cats were live trapped within the large Hatteras Inlet bird closure where chick loss was documented.

Higher chick survivability on Ocracoke Island may be associated with less potential human disturbance. Compared to Hatteras and Bodie Island, higher proportions of Ocracoke beaches are closed to ORVs (off-road vehicles) and beach side parking areas allowing easy pedestrian access are more limited. Predation pressures on Ocracoke appear less severe. Though mink are present, neither fox nor raccoon are on the island. Avian predators do not tend to congregate near nesting sites. Food availability may be more abundant on Ocracoke. The island has vast acreage of shallow salt marsh. Adults, who feed their young up to 60 days, may find more than ample food supply in these productive marshlands. Hatteras Island's salt marshes are overall narrow and often eroding. Bodie Island has expansive marshlands but predation pressure on the few nesting pairs appears high.

American oystercatchers require large undisturbed areas to successfully breed. Frequent human disturbance can cause the abandonment of nest sites as well as direct loss of eggs and chicks. It is unknown to what degree human activities directly or indirectly impact nesting efforts within CAHA. This year, thirty-four of the forty-six nests were located in areas normally used by off-road vehicles. Of these, fourteen (41%) successfully hatched and nine produced fledglings. Fourteen (44%) of the twenty-four oystercatcher fledglings at CAHA were found in areas temporarily closed to ORV traffic. Three nests were in day-use areas. These beach sites are served by adjacent parking lots and have heavy pedestrian use. One (33%) of the three nests in day use areas hatched. A single fledgling was produced representing 4% of this season's total. As in the past two years, no breeding activity was found on beaches adjacent to villages. These beaches have the highest concentrations of pedestrian beach users found at CAHA. Nine clutches (26%) were found in "other" sites not classified as day use or ORV sites. On a day to day basis, these areas were exposed to the least amount of potential human disturbance. Seven nests (78%) hatched. Five of these produced nine (43%) of the total fledglings at CAHA. This later category site had the highest percentage of nest success and produced fledglings proportionately similar to ORV sites.

Incidents of visitors entering posted bird closures at CAHA were documented between May and September of 2001. These closures did not only represent sites where American Oystercatchers nested but also colonial waterbirds and Piping Plover (*Charadrius melodus*) as well. Most illegal entries were not witnessed but documented based on vehicle or pedestrian tracks left behind. Numbers are conservative since some individual records involved more than one vehicle or pedestrian. A total of 63 incidents were recorded of ORVs entering posted bird closures. This number is similar to the 58 vehicle entries documented in 2000. Of the 63 incidents reported in 2001, 33 occurred on Bodie Island, 21 on Hatteras Island and nine on Ocracoke Island. These incidents required, at minimum, repairs to twine strung between posts but often involved the replacement of broken posts and signs. Two hundred forty-seven pedestrians illegally entered the bird closures compared to 56 incidents recorded last year. In part, this increase reflects more thorough documentation. In 2001, 148 occurred on Bodie Island, 95 on Hatteras Island and four on Ocracoke Island. Contacts were made with several people found defecating within the posted

area. Judging by the amount of human feces and toilet paper left behind, this was one of the main reasons people entered the closures. Other people contacted said they thought the closures were only for ORVs though the signs clearly stated pedestrian entry was also prohibited. Each entry required visitors to lift and bend under string that connected all posted signs. Unintentional human disturbance may have resulted if closures were not large enough to supply ample undisturbed habitat.

Conclusion and Recommendations

American Oystercatcher breeding efforts at CAHA were not highly successful in the past three years. Both hatching and fledgling successes were low. However, three years of data for Ocracoke Island show some degree of variability on this island, some years being significantly more productive than others. Higher productivity levels on Ocracoke Island may be associated with the less human disturbance, lower predation levels and/or abundant food availability. It is not known at this time what levels of productivity are required to sustain the population. Dr. Ted Simons of North Carolina State University has been monitoring American Oystercatcher breeding success at Cape Lookout for five seasons. He has also been reviewing data collected at CAHA over the past three years. He theorizes that relatively low productivity levels may be sufficient to maintain populations of these long-lived birds *if* adult and sub-adult survivorship is high. Survivability levels are unknown at this point. Banding breeding adults and their chicks would help answer this question. Locating wintering roost sites in North Carolina and other states would also facilitate this. Numbers of adults and sub-adults in these roosts could be surveyed over successive years. An initial aerial survey was conducted on January 8, 2002. No groups of roosting American Oystercatchers were found along the shores of CAHA, Pea Island Wildlife Refuge or adjacent sound islands. Roosts were found on three islands in the Beaufort/Morehead City area of Core Sound. Numbers totaled approximately 150 birds. Funding is needed to complete a comprehensive study of the American Oystercatcher at CAHA.

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Table 1. American Oystercatcher Breeding Activity at Cape Hatteras National Seashore 2001

Location	Pair	Nest	Egg	Nests Lost or Abandoned		Nest	Hatch	Egg	Hatch	Chicks Fledged		Nests with Fledged Chicks		Productivity (fledglings/breeding pair)
	#	#	#	#	%	#	%	#	%	#	%	#	%	
Bodie Island	2	3	6	2	67%	1	33%	2	33%	1	50%	1	33%	0.50
Hatteras Island	24	28	55	18	64%	10	36%	18	34%	6	33%	6	21%	0.25
Ocracoke Island	13	15	35	4	27%	11	67%	22	52%	17	77%	8	53%	1.07
Totals	**39**	**46**	**96**	**24**	**52%**	**22**	**48%**	**42**	**44%**	**24**	**57%**	**15**	**33%**	**0.62**

Table 2. American Oystercatcher Breeding Activity at Cape Hatteras National Seashore 2000

Location	Pair	Nest	Egg	Nests Lost or Abandoned		Nest	Hatch	Egg	Hatch	Chicks Fledged		Nests with Fledged Chicks		Productivity (fledglings/breeding pair)
	#	#	#	#	%	#	%	#	%	#	%	#	%	
Bodie Island	2	3	3	3	100%	0	0%	0	0%	0	0%	0	0%	0.00
Hatteras Island	23	29	82	19	66%	10	34%	21	26%	2	10%	2	7%	0.09
Ocracoke Island	12	17	40	10	59%	7	41%	11	28%	7	64%	5	29%	0.58
Totals	**37**	**49**	**125**	**32**	**65%**	**17**	**35%**	**32**	**26%**	**9**	**28%**	**7**	**14%**	**0.24**

Table 3. American Oystercatcher Breeding Activity at Cape Hatteras National Seashore 1999

Location	Pair	Nest	Egg	Nests Lost or Abandoned		Nest	Hatch	Egg	Hatch	Chicks Fledged		Nests with Fledged Chicks		Productivity (fledglings/breeding pair)
	#	#	#	#	%	#	%	#	%	#	%	#	%	
Bodie Island	2	2	3	2	100%	0	0%	0	0%	0	0%	0	0%	0.00
Hatteras Island	24	31	71	24	77%	7	23%	13	18%	3	23%	3	10%	0.13
Ocracoke Island	15	17	36	10	59%	7	41%	10	28%	2	20%	2	12%	0.13
Totals	**41**	**50**	**110**	**36**	**72%**	**14**	**28%**	**23**	**21%**	**5**	**22%**	**5**	**10%**	**0.12**

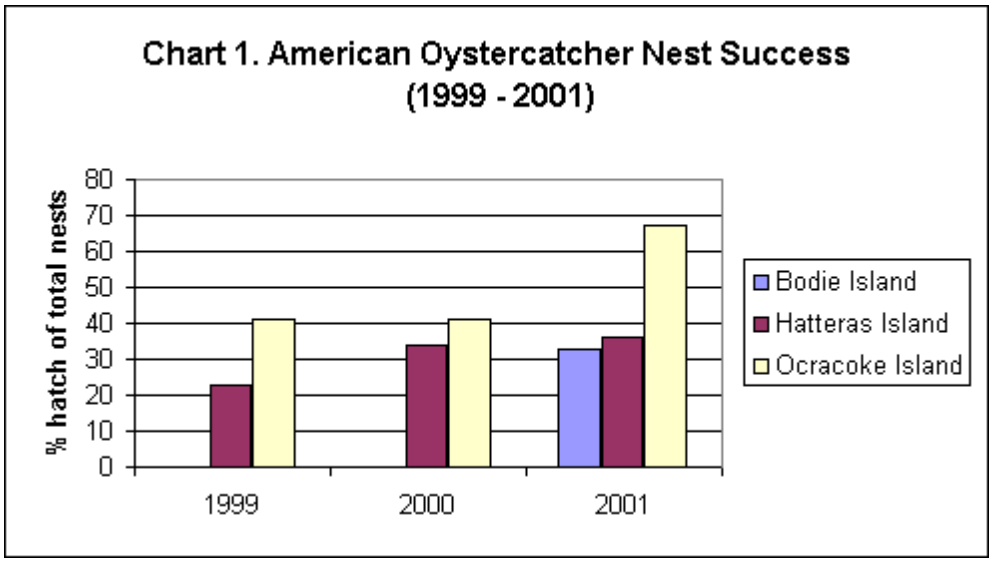
Chart 1. American Oystercatcher Nest Success
(1999 - 2001)
% hatch of total nests
80
70
60
50
40
30
20
10
0
1999
2000
2001
Bodie Island
Hatteras Island
Ocracoke Island

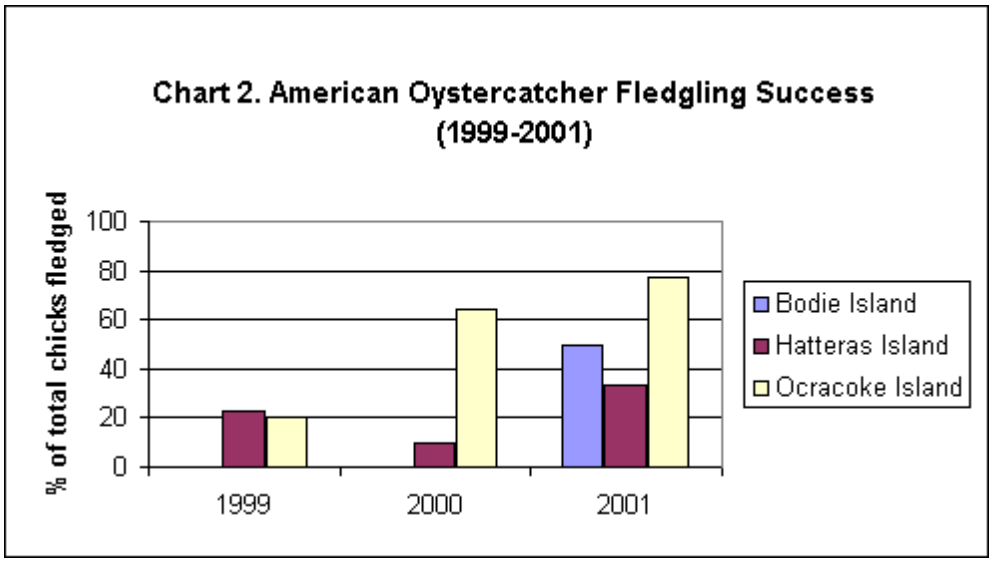
Chart 2. American Oystercatcher Fledgling Success
(1999-2001)
% of total chicks fledged
100
80
60
40
20
0
1999
2000
2001
Bodie Island
Hatteras Island
Ocracoke Island

2001 American Oystercatcher Breeding Activity at Cape Hatteras National Seashore
Appendix A

Pair #*	Nest #	Location	GPS	Zone **	# eggs	Date nest discovered	Date egg loss observed (cause)	Hatching date if known; # of chicks	Date chick loss observed (cause)	Date fledging observed; # fledged
Hatteras Island										
1	H1	1 mile S of R55; Hatteras	35 11.947 75 43.184	ORV	2	4/25/01	5/05/01; unknown	N/A	N/A	N/A
1	H17	Hatteras Inlet; .9 miles S of R55	35 11.970 75 43.134	ORV	3	5/21/01	N/A	6/17/01; 1 chick	N/A	7/28/01; 1 fledgling
2	H2	.3 miles S of R30	35 26.101 75 29.061	ORV	2	4/29/01	N/A	5/27/01; 2 chicks	6/10/01; unknown	N/A
3	H3	Cape Point bird closure; south facing beach	35 13.517 75 32.047	ORV	3	5/4/01	5/12/01; unknown, possible fox predation; fox tracks in area	N/A	N/A	N/A
4	H4	Cape Point bird closure; south facing beach	35 13.172 75 32.105	ORV	1	5/4/01	5/12/01; unknown, possible fox predation; fox tracks in area	N/A	N/A	N/A
5	H5	South beach closure; .9 miles S of R45	35 14.078 75 33.620	ORV	3	5/5/01	5/??/01; unknown	N/A	N/A	N/A
5	H16	South beach; .9 miles S of R45	35 14.026 75 33.351	ORV	1	5/23/01	5/31/01; unknown	N/A	N/A	N/A
6	H6	South beach closure; 1.4 miles S of R45	35 14.086 75 33.846	ORV	3	5/5/01	N/A	6/4/01; 2 chicks	6/20/01; unknown	N/A
7	H7	Hatteras Inlet bird closure; .1 mile S of R57	35 11.370 75 44.721	ORV	3	5/6/01	5/17/01; unknown	N/A	N/A	N/A
8	H8	Hatteras Inlet bird closure; .2 miles S of R57	35 11.377 75 44.793	ORV	1	5/6/01	5/17/01; unknown	N/A	N/A	N/A
9	H9	Hatteras Inlet bird closure; .8 miles S of R57	35 11.344 75 45.319	ORV	3	5/6/01	5/17/01; unknown	N/A	N/A	N/A
9	H20	Hatteras Inlet bird closure; .7 miles S of R57	35 11.352 75 45.340	ORV	1	5/31/01	6/16/01; unkown	N/A	N/A	N/A

9	H23	Hatteras Inlet bird closure; SE corner of enclosure	35 11.296 75 45.245	ORV	1	6/16/01	7/11/01; gull tracks in area	N/A	N/A	N/A
10	H10	Hatteras Inlet; just N of R57, "corner closure"	35 11.560 75 44.309	ORV	2	5/10/01	6/04/01; unknown	N/A	N/A	N/A
11	H11	Hatteras Inlet; .8 miles S of R55	35 12.377 75 43.041	ORV	3	5/10/01	N/A	5/23/01; 1 chick	6/04/01; unknown (cats trapped/removed from area	N/A
12	H12	Hatteras Inlet bird closure; .3 miles S of R57	35 11.369 75 44.953	ORV	3	5/13/01	N/A	5/31/01; 3 chicks	6/10/01; 1 chick lost - unknown; 6/22/01; 2nd chick lost - unknown	7/28/01; 1 fledgling
13	H13	Cape Point; .2 miles S of R44; E facing beach	35 13.575 75 31.696	ORV	1	5/14/01	5/24/01; fox	N/A	N/A	N/A
14	H14	Cape Point; .8 miles S of R44; between pond #1 and #2	35 13.328 75 31.829	ORV	1	5/18/01	6/03/01; unknown	N/A	N/A	N/A
15	H15	Hatteras Inlet; .3 miles S of R55	35 12.175 75 42.508	ORV	1	5/22/01	N/A	6/17/01; 1 chick	6/23/01; unkown	N/A
16	H18	1.1 mile S of R45; South beach	35 14.031 75 33.459	ORV	3	5/27/01	6/15/01; nest empty after heavy rains from tropical depression	N/A	N/A	N/A
17	H19	Hatteras Inlet bird closure; behind pond	35 11.465 75 45.290	ORV	2	5/28/01	6/10/01; unknown	N/A	N/A	N/A
18	H21	Lighthouse beach; .6 miles N of R43	35 14.634 75 31.544	day use	2	6/4/01	6/19/01; possible fox predation, fox tracks throughout area	N/A	N/A	N/A
19	H22	ca. 1/2 mile S of Haulover	35 17.517 75 30.834	day use	N/A	N/A	N/A	6/04/01; 2 chicks	6/10/01; 1 chick lost - unknown	6/27/01; 1 fledgling
20	H24	South beach; .1 mile S of R45	35 13.784 75 32.512	ORV	1	6/18/01	6/25/01; unknown	N/A	N/A	N/A
21	H25	Washover N of Buxton	35 16.718 75 31.020	other	unknown nest; at least 1egg	N/A	N/A	6/22/01; at least 1 chick produced	N/A	6/26/01; 1 fledgling
22	BH1	0.6 mi. S of R27	35 27.630 75 28.966	ORV	3	5/11/01	N/A	5/29/01; 3 chicks	6/18/01; 1 chick lost- unkown cause; 6/20/10; 2nd chick lost - unknown cause	7/16/01; 1 fledgling

23	BH2	1 mile S of R27	35 27.294; 75 28.989	ORV	3	5/1101	N/A	5/26/01; 2 chicks	6/04/01;1 chick -unknown	7/16/01; 1 fledgling
24	BH3	2.0 mi. S of R23	35 30.076; 75 28.532	ORV	2	6/1/01	6/16/01; crow tracks at nest; broken egg nearby	N/A	N/A	N/A
Bodie Island										
1	B1	Bodie Island flats - N side of Oregon Inlet	35 46.674; 75 28.966	ORV	2	5/11/01	5/14/01; fox tracks leading up to nest	N/A	N/A	N/A
1	B2	Bodie Island flats - N side of Oregon Inlet	35 46.651; 75 32.166	ORV	2	5/23/01	6/09/01; red fox tracks at nest	N/A	N/A	N/A
2	B3	Bodie Island flats - N side of Oregon Inlet	35 46.651; 75 32.166	ORV	2	5/23/01	N/A	6/17/01; 2 chicks	6/26/01; 1 chick lost - unknown	7/28/01; 1 fledgling
Ocracoke Island										
1	O1	Ramp 59	35 09.664 75 50.195	Orv	2	4/30/01	5/19/01; cause of loss undetermined/Predator tracks (mink) in area		N/A	N/A
2	O2	1.7 miles South of Ramp 67	35 07.193 75 53.748	other	2	4/30/01	N/A	6/5/01; 2 chicks	N/A	7/1/01; 2 fledglings
3	O3	1.5 miles South of Ram 70	35 05.512 75 58.620	ORV	4	4/30/01	N/A	5/30/01; 3 chicks	6/5/01; 1 chick lost - unknown	7/1/01; 2 fledglings
4	O4	.9 miles South of Ramp 72	35 04.481 76 00.022	ORV	3	5/12/01	N/A	6/13/01; 3 chicks	N/A	7/11/01; 2 fledglings; 3rd not seen but assumed fledged based on age calculated from est. hatch date of 6/7
5	O5	1.3 miles South of Ramp 68	35 06.855 75 56.353	other	3	5/15/01	N/A	6/6/01; 2 chicks	N/A	7/20/01; 2 fledglings
6	O6	.9 miles South of Ramp 59	35 10.619 75 47.577	other	2	5/15/01	5/25/01; nest lost to unknown causes	N/A	N/A	N/A
6	O13	Ramp 59 closure	35 10.914 75 46.632	ORV	2	6/10/01	N/A	7/4/01; I chick	7/22/01 closure flooded parents and chick missing	N/A
7	O7	2.0 miles South of Ramp 72	35 04.228 76 00.660	ORV	3	5/15/01	N/A	6/13/01; 2 chicks		7/17/01; 2 fledglings

8	8	3.7 miles South of Ramp 59	35 04.228 75 50.195	other	2	5/19/01	N/A	5/24/01; 2 chicks	6/05/01; 2 chicks lost to unknown causes	N/A
8	O14	3.7 miles South of Ramp 59	35 09.668 75 50.179	other	2	6/19/01	7/01/01; nest lost to ghost crab predation	N/A	N/A	N/A
9	O9	2.3 miles south of Ramp 59	35 10.608 75 49.292	other	2	5/23/01	N/A	6/25/01; 2 chicks	N/A	7/30/01; 2 fledglings
10	O10	4 miles South of Ramp 59	35 09.585 75 50.303	other	2	5/24/01; mother discovered brooding on beach	N/A	5/22/01 or 5/23/01; 2chicks	N/A	unable to locate group after 6/23/01; assumed 2 fledglings based on age
11	O11	.5 miles North of Ramp 59	35 11.07 75 46.417	ORV	2	5/29/01	N/A	6/27/01; 2 chicks	N/A	8/1/01; 2 fledglings
12	O12	1.5 miles South of Ramp 59	35 10.239 75 48.645	other	2	6/5/01	N/A	7/4/01; 1 chick	7/11/01; chick or parents not in area; reason unknown	N/A
13	15	.8 miles North of Ramp 67	35 08.389 75 53.190	day use	2	6/20/01 pair seen mating	7/11/01; enclosure abandoned; possibly due to heavy day use traffic	N/A	N/A	N/A

* Breeding Pair #s
H or HB - Hatteras Island pair
B - Bodie Island pair

0 - Ocracoke Island pair

** Zones
ORV - areas within off-road vehicle designated beaches
day use - beach areas of high pedestrian day use serviced by parking lots
village - beach areas of high pedestrian use fronting village boundaries
other - beach areas not having high pedestrian use and closed to off-road vehicles